Communicable Disease Report

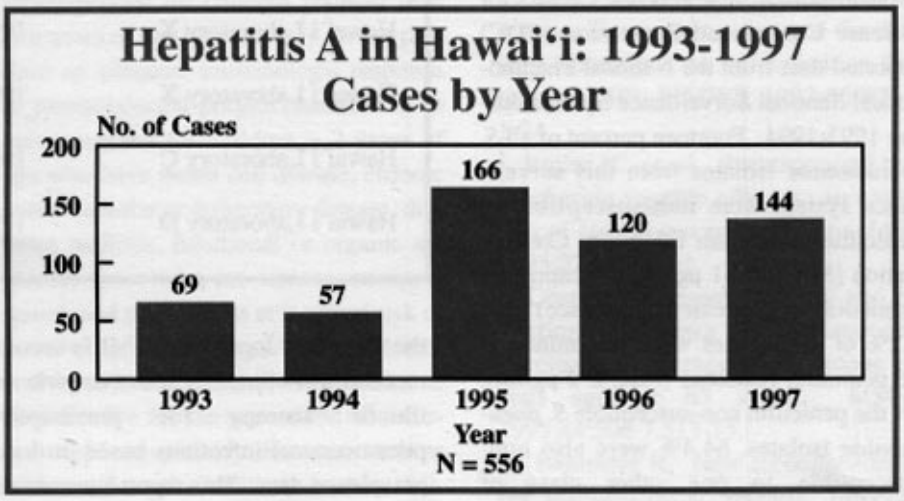
Hawai'i Department of Health
Communicable Disease Division

March/April 1998

Hepatitis A in Hawai`i

Surveillance Review

Hepatitis A is a category 1 notifiable communicable disease to the Department of Health (DOH), requiring an immediate telephone report, under Chapter 156 of the Hawai`i Administrative Rules. In 1993 and 1994 there were 69 and 57 cases of *hepatitis A* respectively reported to the Epidemiology Branch of the DOH. Substantial increases in the number of cases reported were seen over the next three years: 166 cases in 1995, 120 cases in 1996, and 144 cases in 1997 (See Figure).



Hawai`i's 1995 incidence rate of 14.0 cases/100,000 population was above the 1995 U.S. rate of 10.1/100,000. Hawai`i's rate for 1996 equaled the national rate of 10.1/100,000, while the state's rate in 1997 rose to 12.1/100,000.

The increase in cases for 1995 and 1996 can be attributed to two outbreaks. In 1995, a community wide outbreak occurred in the Puna district on the island of Hawai`i. In 1996, an foodborne outbreak of *hepatitis A* occurred at a reception during a bankers' convention. In 1997, all cases reported were sporadic and not associated with any outbreaks.

While the number of cases reported have been higher in the past three years, this does not necessarily represent a trend towards increased incidence. Past data indicate incidence can vary significantly from year to year. The number of Hepatitis A cases reported so far in 1998 is sharply lower than the number reported during the same period in 1997.

In 1997, ages ranged from 1 to 76 years with the mean age of 36.4 years, and median of 32 years. Eighty-five cases were male and 59 cases were female. Of the 144 cases, 34.0% (49/144) were Pacific Islanders, 22.9% (33/144) Caucasian, 19.4% (28/144) unknown, 15.2% (22/144) Asian, and 8.5% 12/144) were of mixed races.

About The Disease

Hepatitis A virus (HAV) can produce both asymptomatic and symptomatic infections in humans after an average incubation period of 28 days (range: 15-50 days). Illness caused by HAV infection typically has an abrupt onset, with symptoms that can include fever, malaise, anorexia, nausea, abdominal discomfort, dark urine, and jaundice. The likelihood of symptomatic HAV infection is related to a person's age. In children under 6 years of age, most infections (up to 70%) are asymptomatic; if illness does occur, it is not usually accompanied by jaundice. Among older children and adults, infection is usually symptomatic, with jaundice occurring in more than 70% of patients. Signs and symptoms rarely last more than two months, although 10%-15% of cases may have prolonged or relapsing illnesses lasting up to six months.

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Antibiotic Resistance of Streptococcus pneumoniae in Hawai`i

Background

Streptococcus pneumoniae is an important pathogen causing bacteremia, meningitis, pneumonia, and otitis media. During the past two decades, the incidence of resistance to penicillin has been steadily increasing. This organism is also becoming resistant to non-beta-lactam antibiotics, including chloramphenicol, tetracycline, trimethoprim-sulfamethoxazole, erythromycin, and broad-spectrum cephalosporins. Recently, the Centers for Disease Control and Prevention (CDC) reported data from the National Pneumococcal Sentinel Surveillance System during 1993-1994. Fourteen percent of all *S. pneumoniae* isolates from this surveillance system were **non-susceptible** to penicillin (Minimum Inhibitory Concentration [MIC] ≥ 0.1 µg/ml, indicating intermediate or greater resistance) and 3.2% of the isolates were determined to be penicillin-**resistant** (MIC ≥ 2 µg/ml). Of the penicillin non-susceptible *S. pneumoniae* isolates, 64.4% were also non-susceptible to one other class of antimicrobial drug. Similar data were reported by other multi-center surveillance studies.

Since *S. pneumoniae* infections are primarily considered to be community-acquired, it is important that population-based surveillance data are collected at the state and local levels. It is recommended that clinicians select empiric antibiotic therapy for presumptive pneumococcal infections based on local prevalence data. This report summarizes recent data on *S. pneumoniae* resistance in Hawai`i.

Comparison of Penicillin Susceptibility Results in Hawai`i Laboratories with that of National Surveys

Location of Isolates	Date of Isolates	Number Tested	% Penicillin Resistant	% Penicillin Intermediate
Canada (39 Laboratories)	1994-1995	1089	3.3	8.4
U.S. (11 states)	1993-1994	740	3.2	10.9
U.S. (30 medical centers)	1995	1527	9.5	14.1
Hawai`i Laboratory X	1995	92	1.0	12.0
Hawai`i Laboratory X	1997	94	6.0	19.0
Hawai`i Laboratory C	1997	68	9.0	16.0
Hawai`i Laboratory D	1997	62	3.0	13.0

Methods

In 1995, of 92 isolates from clinical specimens tested in our laboratory (Lab X), 10 (13%) were penicillin non-susceptible (1 resistant and 9 intermediate by MIC). In the present study (1997), 94 consecutively collected *S. pneumoniae* clinical isolates were tested for their antibiotic susceptibilities. These isolates were from various sources including blood, CSF, ear, nose, sputum, urine, throat and eye specimens, and were from pediatric as well as adult patients. In addition, susceptibility data obtained from four other local clinical laboratories (Labs A, B, C, D) were analyzed. The oxacillin screening susceptibility test was done to presumptively determine if a *S. pneumoniae* isolate was not susceptible to penicillin. MIC testing was done to see if the organism was truly non-susceptible, and if it was non-susceptible, whether it was a low-level resistance (intermediate, MIC ≥ 0.1 - < 2 µg/ml) or high-level resistance (MIC ≥ 2 µg/ml) organism.

Results

Results from Laboratories A and B were limited to the oxacillin screening for penicillin only, with Laboratory A exhibiting 15% presumptive penicillin resistance, and Laboratory B with 21%. Because complete susceptibilities were not performed routinely on all isolates from Laboratories A and B, data comparisons were made only between our laboratory (Lab X) and the other two laboratories (Lab C and D). The table shows the results of the study in comparison with national surveys.

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1998 Pneumococcal Vaccine Recommendations

The Advisory Committee on Immunization Practices (ACIP) of the Centers for Disease Control and Prevention (CDC) has updated recommendations for use of the pneumococcal vaccine.[1]

Streptococcus pneumoniae (pneumococcus) is a bacterial pathogen causing substantial morbidity in children, elderly persons who are immunocompromised, and persons with certain underlying medical conditions, such as anatomic asplenia. *Streptococcus pneumoniae* colonizes the upper respiratory tract and can cause meningitis, bacteremia, pneumonia, and otitis media[1]. The highest rates of invasive bacteremia in the United States (U.S.) occurs in persons ≥ 65 years old (50-83 cases per 100,000) and in children ≤ 2 years old (160 cases per 100,000).

It is estimated that pneumococcal infection causes 40,000 deaths per year in the U.S. Many of these deaths could be prevented through use of the vaccine.[1]

There are over 80 different subtypes of the pneumococcal bacteria. The current vaccines manufactured by Merck and Company, Inc. (Pneumovax® 23) and Lederle Laboratories (Pnu-Immune® 23) contain 23 subtypes of purified capsular polysaccharide antigens of *S. pneumoniae*. These 23 subtypes cause at least 85% of invasive pneumococcal disease in adults and children in the U.S.[2] The vaccines have been licensed in the U.S. since 1983.

A 1996 survey of 36 long term care facilities conducted by the Hawai`i Immunization Program found that only 47% of 2650 eligible residents had received the pneumococcal vaccine. In 1993, of all persons over the age of 65 in the U.S., it was estimated that only 30% received the pneumococcal vaccine.[3]

Pneumococcal vaccine is not currently recommended for children younger than two years of age because they do not produce an adequate immunologic response to pneumococcal polysaccharides. It is recommended for children > 2 years of age who have sickle cell disease, chronic cardiovascular or pulmonary disease, diabetes mellitus, functional or organic asplenia, those who are immunocompromised, and populations at increasd risk of invasive infections, e.g. Alaskan natives and American Indians.[4] The vaccine is not effective for the prevention of recurrent upper respiratory diseases, such as otitis media and sinusitis in healthy children.[1]

Revaccination five years after administration of the previous vaccine is recommended for certain high risk adults. These include persons ≥ 65 years of age, those with asplenia and immunocompromised persons. Antibodies in healthy adults persist for five to ten years, but may decline more rapidly in the elderly, immunocompromised, and splenectomized individuals.

For more information on the updated pneumococcal vaccination recommendations and other immunizations, please call the Hawai`i Immunization Program in Honolulu at (808) 586-8300.

REFERENCES

[1] Centers for Disease Control and Prevention. Prevention of pneumococcal disease: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1997;46(RR-8): 1-24.

[2] Butler JC, et. al. Pneumococcal polysaccharide vaccine efficacy: an evaluation of current recommendations. JAMA 1993;270:1826-31.

[3] Centers for Disease Control and Prevention. Influenza and pneumococcal vaccination coverage levels among persons aged ≥ 65 years. MMWR 1995;44:506-7,513-15.

[4] Baltimore R. New recommendations for pneumococcal vaccine. Infectious Disease Alert 1998;17:63-4.

Submitted by Erick Cremer, RN, MPH, Epidemiological Specialist, Hawai`i Immunization Program, Epidemiology Branch

Streptococcus pneumoniae

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Of the 94 *S. pneumoniae* isolates tested in 1997 in our laboratory (Lab X), 25% were penicillin non-susceptible (6% were resistant and 19% were intermediate), an increase from 13% tested in 1995. However, while all isolates tested in this study were susceptible to vancomycin, some isolates were found to be resistant to chloramphenicol (2%), erythromycin (7%), or tetracycline (9%).

Fifteen (62%) of the penicillin non-susceptible isolates were resistant to at least one other antibiotic that was tested by our laboratory, whereas only 3 (4%) of 70 penicillin susceptible isolates were resistant to other antibiotics. Similar patterns of antibiotic resistance were observed in the data from laboratories C and D (data not shown).

Discussion

Due to the limited number of isolates in our study, definitive conclusions could not be drawn regarding *S. pneumoniae* antibiotic resistance and the age of the patient or the source of the isolate. Other investigators found penicillin non-susceptibility rates for isolates obtained

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Hepatitis A in Hawai'i

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HAV replicates in the liver and is excreted in bile and shed in the stools of infected persons. Peak infectivity occurs during the two-week period before the onset of jaundice or elevation of liver enzymes, when the concentration of virus in stool is highest. Stool viral concentration declines after jaundice appears. Young children and infants can shed HAV for longer periods than adults, up to several months after the onset of clinical illness. Chronic shedding of HAV in feces does not occur; however, viral shedding may recur in persons who have relapsing illness.

Diagnosis

Hepatitis A cannot be differentiated from other types of viral hepatitides based on clinical or epidemiologic features alone. Serologic testing to detect IgM antibody to the capsid proteins of HAV (anti-HAV IgM) is required to confirm a diagnosis of acute HAV infection. In most persons, anti-HAV IgM becomes detectable 5-10 days after exposure and can persist for up to six months after infection. IgG anti-HAV, which appears early in the course of infection, remains detectable for the person's lifetime and confers lifelong protection against the disease. Commercial diagnostic tests are available for the detection of IgM and total (IgM and IgG) anti-HAV in serum.

Post-exposure Prophylaxis and Hepatitis A Vaccine

Persons exposed to HAV who have not previously been immunized with *hepatitis A* vaccine should be given a single intramuscular dose of immune globulin (IG) (0.02 mL/kg) as soon as possible, but not more than two weeks after exposure. Persons who have received at least one dose of *hepatitis A* vaccine at least one month before exposure to HAV do not need IG. *Hepatitis A* vaccine may be administered simultaneously with IG at a separate anatomic injection site.

Because *hepatitis A* cannot be reliably diagnosed on clinical presentation alone, serologic confirmation of HAV infection in index patients by anti-HAV IgM testing is recommended before post-exposure treatment of contacts. However screening of contacts for immunity before giving IG is not recommended because screening is more costly than IG and would delay its administration.

Reporting

The DOH investigates all acute cases of HAV infection. Prompt reporting of suspected *hepatitis A* illness expedites epidemiologic investigation and ensures timely administration of appropriate prophylaxis and implementation of outbreak control measures to prevent spread of the disease. For further assistance, please contact the Epidemiology Branch at (808) 586-4586 on O`ahu, (808) 933-0912 on Hawai`i, (808) 984-8213 on Maui, and (808) 241-3563 on Kaua`i.

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Streptococcus pneumoniae

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from young children to be between 18% and 28%. In addition, more than 10% of the isolates obtained from adults were also non-susceptible to penicillin, indicating that drug resistant *S. pneumoniae* infections are no longer just a pediatric problem. Previous studies also documented increasing resistance to broad-spectrum cephalosporins such as cefotaxime and ceftriaxone. Because of the potential for resistance, several authors suggested that empiric therapy for *S. pneumoniae* meningitis should include vancomycin in combination with parenteral cefotaxime or ceftriaxone.

Conclusions

The proportion of *S. pneumoniae* isolates resistant to antibiotics appears to be increasing in Hawai`i. The cause of this increase has not yet been determined. It is believed that selective pressure resulting from frequent use of antimicrobial drugs may contribute to this development. Since *S. pneumoniae* organisms resistant to penicillin are more likely to be resistant to other antibiotics, susceptibility test results are important in determining appropriate antibiotic therapy. For organisms isolated from blood or CSF, it is important to do complete antibiotic susceptibility tests, including MICs for penicillin and broad-spectrum cephalosporins. For organisms isolated from other sources, an oxacillin screen with reflex MIC testing of oxacillin resistant isolates is recommended. Finally, for patients with predisposing medical conditions and the elderly (> 65 yr.), consideration should be given to using the pneumococcal capsular polysaccharide vaccine. Eighty-nine percent of all the penicillin non-susceptible *S. pneumoniae* isolates identified in the CDC survey would have been covered by the 23-valent vaccine.

Acknowledgments

The following laboratories are thanked for providing their *Streptococcus pneumoniae* susceptibility data: Clinical Laboratories of Hawai`i (Microbiology Dept., O`ahu location), Kaiser Medical Center of Hawai`i (Microbiology Dept.), Straub Medical Center (Microbiology Dept.), and Castle Medical Center (Microbiology Dept.).

Editorial Note: The authors cited nine references. Please contact them for that information.

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Recommended Childhood Immunization Schedule - United States, 1998

The 1998 Recommended Childhood Immunization Schedule was published in the January 16, 1998 issue of Morbidity and Mortality Weekly Report (MMWR, vol. 47, no. 1). The Advisory Committee on Immunization Practices (ACIP), the American Academy of Pediatrics (AAP) and the American Academy of Family Physicians (AAFP) have made new recommendations since the original harmonized schedule was published in January 1997. These changes are outlined below:

1. The recommended age for the second dose of measles-mumps-rubella vaccine (MMR) is now 4 - 6 years.

2. The third dose of IPV in an all-IPV schedule may now be administered as early as 6 months (previously recommended at 12 - 18 months of age). The recommended age for an all-OPV or all-IPV schedule are now the same: 2, 4, 6 - 18 months, and 4 - 6 years. The sequential schedule remains as previously recommended: IPV at 2 and 4 months followed by OPV at 12 - 18 months and 4 - 6 years.

3. The three Hemophilus influenzae type b (HIB) vaccines licensed for infant vaccination are:
   a) HibTITER® (HbOC) [Wyeth-Lederle Laboratories]
   b) ActHIB® and Omni-HIB® (PRP-T) [Pasteur-Merieux Connaught and SmithKline Beecham]
   c) PedvaxHIB® (PRP-OMP) [Merck, Inc.]

   These products are now considered interchangeable for primary as well as booster vaccinations.

   Note: If PedvaxHIB is administered in a series with one of the other two products, the recommended number of doses to complete the series is determined by the other product. In other words, a two-dose primary series is only applicable if BOTH doses are PedvaxHIB - otherwise the infant must receive a THREE dose primary series.

4. For children born to Hepatitis B surface antigen negative mothers, the third dose of hepatitis B vaccine should be administered at least two months after the second dose **but not before age 6 months.**

   Children and adolescents who have not been vaccinated in infancy may begin the series during any visit. The second dose should be administered at least one month after the first dose, and the third dose should be administered at least 4 months after the first dose **and** at least two months after the second dose.

5. The routine visit to health-care providers for adolescents at 11 - 12 years of age remains an important time to ensure receipt of:
   a) two doses of MMR beginning at or after age 12 months
   b) one dose of varicella vaccine
   c) initiation or completion of the hepatitis vaccine series.

A diphtheria and tetanus toxoid (Td) booster should be **routinely** administered to all children at this age, if at least 5 years have elapsed since the last dose of DTP, DTaP, or DT. Subsequent routine Td boosters are recommended every ten years.

For further details, please see the enclosed table, or call the Hawai`i Immunization Program's Officer of the Day in Honolulu at (808) 586-8332.

Submitted by Marcia Nagao, M.D., M.P.H., Infant Immunization Project Coordinator, Hawai`i Immunization Program, Epidemiology Branch.

Communicable Disease Report on the Internet

The Communicable Disease Report (CDR) is available on the Department of Health's homepage on the internet. The homepage address is **www.hawaii.gov/health.** For direct access to the CDR, the address is **www.hawaii.gov/health/cddr/cdr_rpts.htm.** You can also download the document in **pdf** format from that site.

New Guidelines for Treatment of Sexually Transmitted Diseases

Since the release of the *1993 Guidelines for Treatment of Sexually Transmitted Diseases (STDs),* important advances have been made in the diagnosis and treatment of STDs. They are outlined in the updated *1998 Guidelines for Treatment of Sexually Transmitted Diseases.*[1]

- One of these advances is a highly effective single-dose therapy for the treatment of *Chlamydia.*
- Another is an improvement in the treatment of herpes and human papillomavirus (HPV).
- A simple urine test has been introduced which makes it easier to diagnose and treat *Chlamydia* in clinical and non–clinical settings.
- There are also recommendations for hepatitis A and B vaccinations for all sexually active youth.
- Most importantly, there are improved treatments for STDs in pregnancy, which will result in fewer side effects and reduce the number of infants born prematurely or with congenital infections.

The guidelines provide basic information for detecting and treating many "silent" STDs, which are difficult to detect because they frequently have no symptoms, or symptoms that are very vague or easily confused with other disorders. A "silent" STD such as *Chlamydia* can be unknowingly transmitted to partners, and have major consequences in women when not diagnosed and treated – pelvic inflammatory disease, potentially fatal tubal pregnancy, infertility, and poor birth outcomes. *Chlamydia* and certain other STDs can also put patients at greater risk for acquiring and transmitting HIV.

Chlamydia is the most common STD today in women 16 to 25 years of age. Two advances to help fight this STD are outlined in the new guidelines:

1) The introduction of the highly effective single-dose therapeutic antibiotic Azithromycin (1 gm. p.o. for *Chamydia,* and 2 gm. p.o. for Gonorrhea). This solves the problem of patient compliance in taking the medication.
2) Availability of a rapid urine diagnostic test. This procedure is non-invasive and can be used in non-clinical settings for outreach screening programs.

Certain STDs put patients at greater risk of acquiring HIV. If a person acquires an STD, it can be inferred that this person is engaging in high risk behavior, or has a partner that is. High risk behaviors include engaging in unprotected sex (i.e. not using condoms for oral, vaginal, and anal sex) or having multiple sex partners. Certain STDs, such as herpes and syphilis, facilitate the transmission of HIV by creating lesions where the HIV virus can more easily enter the body. STDs stimulate the production of white blood cells that may host the virus in HIV-infected individuals, or act as a target in non–infected partners.

These guidelines are intended for use by health care providers, trainers, educators, researchers and others in primary care, adolescent care, family medicine, family planning, internal medicine, obstetrics-gynecology, urology, dermatology, emergency care, nursing and HIV care. The benefits of effective STD detection and treatment are greatest in adolescent and young adult women and their children, and for HIV prevention. These benefits will translate to lower health care costs.

The guidelines include diagnosis and treatment information for all common STDs, and are organized by syndrome–STDs characterized by genital ulcers, urethritis and cervicitis, and vaginal discharge. These guidelines also include recommendations for STD prevention, as well as special considerations for three high-risk populations: women, adolescents, and infants. Finally, the guidelines include sections on other problems that occur among patients with STDs: pelvic inflammatory disease, epididymitis, patients with penicillin allergy, sexual assault issues, and cervical cancer screening.

The 1998 treatment guidelines may be accessed on the internet at http://www.cdc.gov/nchstp/dstd/dstdp.html, but requires the Adobe Acrobat program to download it. A copy may be ordered by sending your name and address to STD Guidelines, Diamond Head Health Center, 3627 Kilauea Avenue, #304, Honolulu, HI 96816. For more information, call (808) 733-9281 in Honolulu.

REFERENCE:

[1] Centers for Disease Control and Prevention. 1998 Guidelines for treatment of sexually transmitted diseases. *MMWR* 1998;47(No. RR-1):1-116.

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